Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of Review of the Commission's Rules Governing the 896-901/935-940 MHz Band	))))	WT Docket No. 17-200

COMMENTS OF ERICSSON

Ericsson submits these comments in response to the Notice of Proposed Rulemaking ("NPRM") in the above-referenced proceeding, in which the Commission proposes to modify the operational rules and band configuration in the 896-901/935-940 MHz band ("900 MHz band") to allow broadband services.

I. INTRODUCTION

Ericsson commends the Commission for its commitment to making spectrum available for new wireless services and supports this proposed rulemaking for the 900 MHz band. There is growing need for spectrum to meet the increasing demands for transformative wireless broadband services and technologies by consumers and businesses alike.

The November 2018 Ericsson Mobility Report[1] forecasts that LTE subscriptions will reach 5.4 billion by the end of 2024 and will make up more than 60 percent of all mobile subscriptions. In addition, cellular Internet of Things (IoT) connections are expected to surpass four billion by 2024. Ericsson also projects that there will be 1.5 billion 5G subscriptions for enhanced mobile broadband by the end of 2024. To meet these staggering numbers will require

[1] https://www.ericsson.com/assets/local/mobility-report/documents/2018/ericsson-mobility-report-november-2018.pdf.

more spectrum—for just low-band spectrum, CTIA has recommended an additional 100 MHz of spectrum be made available by 2024[2].

The 900 MHz band allocation can play an important role in providing needed spectrum for industry IoT applications, critical infrastructure, and private broadband networks. For example, as utility companies develop and deploy smart grids, they'll need a vast number of wireless smart meters, sensors, and control devices to monitor various conditions of the grid to optimize energy efficiency. Oil and gas industries can leverage LTE for enhanced communications utilizing hand held devices, cameras, etc. for improved safety and reliability of equipment and processes.

II. ERICSSON SUPPORTS BAND REALIGNMENT TO CREATE BROADBAND LICENSES

There is an increasing demand for low-, mid-, and high-band spectrum and reconfiguring the 900 MHz band to include a broadband allocation will help to meet those requirements. This proposed allocation can provide new broadband capacity for critical infrastructure IoT applications and services to improve efficiency, functionality, and system performance. Utilizing the 900 MHz, Cellular IoT technology supported in existing 4G LTE networks and the 5G networks of tomorrow will enable a very broad range of use cases across many industries. For example, 5G seeks to address the automation of industrial manufacturing and process control within local private networks enabling Industrial IoT.

Incorporating a broadband allocation in the 900 MHz band will provide greater flexibility also by allowing users to utilize applications—such as Voice over LTE, Narrowband-IoT (NB-IoT), Mission Critical Push-To-Talk over LTE (MC-PTT over LTE), etc.—with greater capacity

[2] "A National Spectrum Strategy to Lead in 5G" CTIA, https://api.ctia.org/wp-content/uploads/2019/04/A-National-Spectrum-Strategy-to-Lead-in-5G.pdf.

and device density. It should also be noted that critical industries have a strong interest in several of these applications as they provide an evolution path from legacy networks to broadband while retaining traditional services. The 900 MHz band is very attractive for facilitating this transition. This licensed spectrum for broadband services will give industry flexibility in management and control of a network, while offering the high degree of availability, reliability, and resilience with respect to security, end-to-end mission objectives, and communication performance that characterizes indoor, factory and warehouse applications.

In addition, this low-band spectrum is ideal for LTE because of its propagation characteristics, and because the band overlaps the 3GPP Band 8 standard/the GSM 900 band, it is therefore expected to take advantage of international harmonization and economies of scale globally to provide equipment—meaning quicker deployments and cheaper equipment and devices.

III. ERICSSON SUPPORTS A BROADBAND SEGEMENT SIZE OF 3/3 MEGAHERTZ

Given the narrow swaths of available spectrum in the 900 band—only 5 MHz each for uplink and downlink, there are limited options available for the spectrum blocks. However, as the Commission acknowledged in the NPRM, the LTE standard does support a 3 MHz FDD channel bandwidth, which can provide up to 22 Mbps in a 2x2 MIMO configuration[3]. This bandwidth is certainly sufficient for a multitude of services on the same network platform, such as broadband data, voice services, text messaging, push to talk, and the capability to handle communications from massive numbers of small IoT devices, such as sensors and actuators.

[3] It should be noted that as LTE and 5G continue to evolve in the spatial domain (MIMO) higher spectrum efficiency could possibly be achieved that would enable even higher data rates.

Ericsson also supports the Commission's proposal of having the broadband segment in between the 1.5/1.5 MHz and .5/.5 MHz segments.

With the flexibility that broadband provides as well as the increased reliability, resiliency, security, and growing applications such as Voice over LTE, Voice over 5G, NB-IoT, eMTC (enhanced Machine Type Communication) the need for allocated narrowband services will continue to abate. For this reason, the Commission should consider a migration plan for the entire band to be allocated for broadband services.

IV. ERICSSON URGES THE COMMISSION TO ADOPT A BAND ALIGNMENT TRANSITION THAT MAKES THE SPECTRUM AVAILABILE AS QUICKLY AS POSSIBLE

Whether the Commission adopts an overlay or incentive auction approach for realigning the band, clearing the band as quickly as possible allows the licensees to begin deploying services and benefiting from a broadband network quickly. There may also need to be some mandatory actions to clear a sufficiently contiguous amount of spectrum in a short, but reasonable timeframe. The Commission should minimize any potential regulatory bottlenecks that could hinder making the spectrum available in a timely manner. This is imperative so that these industries can remain competitive in this global digital economy.

V. ERICSSON SUPPORTS THE COMMISSION'S PROPOSED LICENSING AND OPERATING RULES

Ericsson support the Commission's proposal to have the 900 MHz broadband licenses regulated under Part 27 of FCC rules. Ericsson also supports the adoption of a 15-year term for broadband licenses in the 900 MHz band with expectation of renewal, which is on par with other Part 27 licenses. In addition, Ericsson supports performance requirements based on providing reliable signal coverage and offering service to at least 45 percent of the population in each of its

license areas within six years of the license issuance date and to at least 80 percent of the population in each of its license areas within 12 years from the license issue date.

VI. ERICSSON SUPPORTS PROPOSED TECHNICAL RULES

Ericsson supports the FCC proposal of a permitted effective radiated power (ERP) for base and repeater stations of 400 watts/megahertz in non-rural areas and 800 watts/megahertz in rural areas for the broadband segment, with the maximum permissible power decreasing as the Height Above Average Terrain (HAAT) rises above 304 meters. Ericsson also supports the proposed out-of-band emission (OOBE) limit of 43 + 10 log (P) dB for uplink operations in the 897.5-900.5 MHz band and 50 + 10 log (p) dB for downlink operations in the 936.5-939.5 MHz band. Ericsson believes these technical rules are appropriate to ensure successful operation of broadband devices in the 900 MHz without causing interference to narrowband operations.

VII. CONCLUSION

Ericsson urges the Commission to act promptly in this proceeding and make licensed spectrum available for broadband services in the 900 MHz band, in accordance with the comments set forth above.

ERICSSON
/s/ Matthew Hussey
MATTHEW HUSSEY
Director, Government Affairs & Public Policy

ERICSSON
1776 I Street, NW
Suite 240
Washington, DC 20006
Telephone: (202) 824-0114

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